PSYC305L LECTURE 7

Memory

Lab 3

What is Memory?

Memory proper is

-the knowledge of a former state of mind after it has already dropped from consciousness

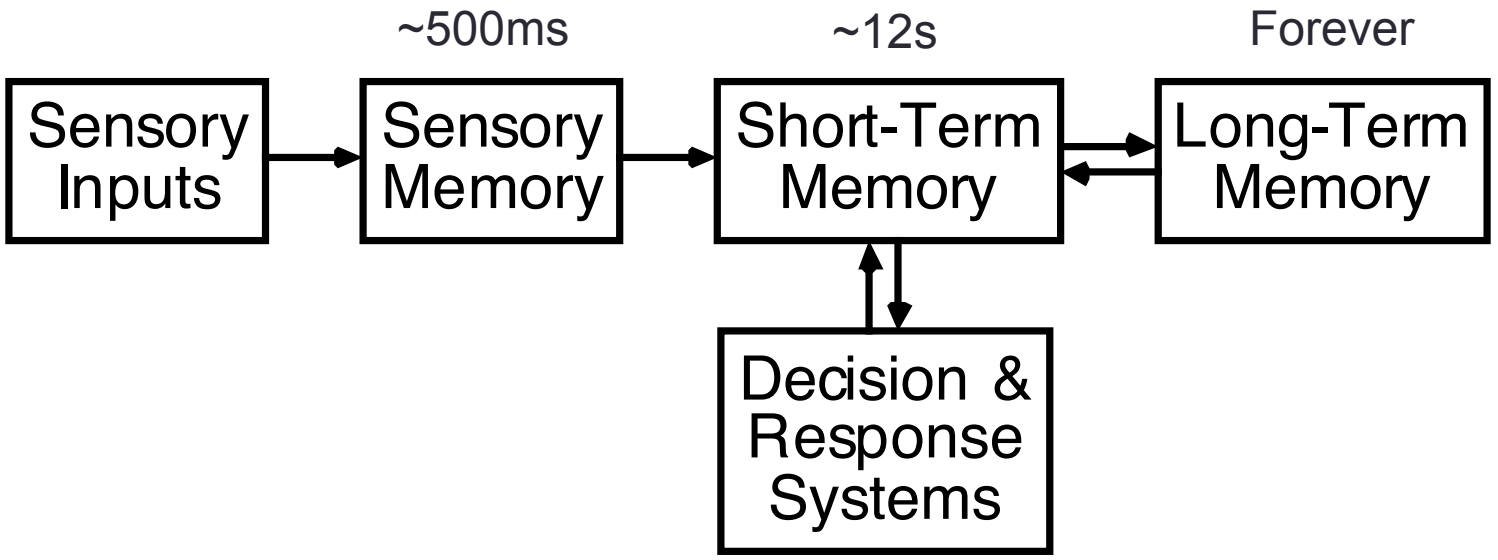
-the knowledge of an event, or fact, of which meantime we have not been thinking, with the additional consciousness that we have thought or experienced it before.

William James (1892)
Principles of Psychology

Parking ~ Memory Systems

The Modal Model of Memory

- Atkinson and Shiffrin (1968) proposed a model of memory that was widely adopted and was later called the "modal model" of memory

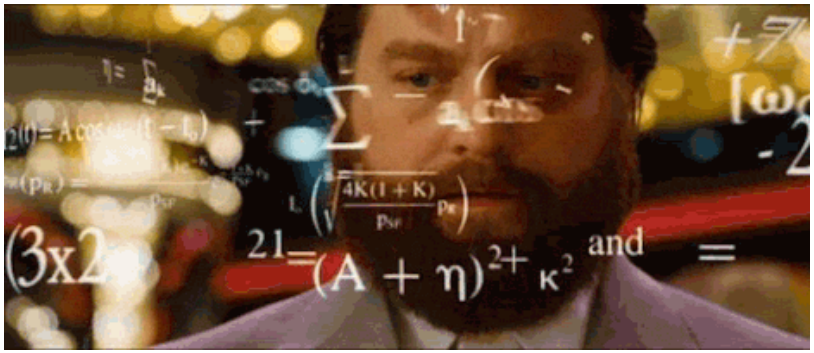


Short-term memory vs. working memory

- Often used interchangeably today
- STM used to be the ‘store-house’ of information
  - E.g. how many letters can you remember?
- WM used to be the ongoing mental activity
  - E.g. doing a math problem in your head, completing sentences, etc.

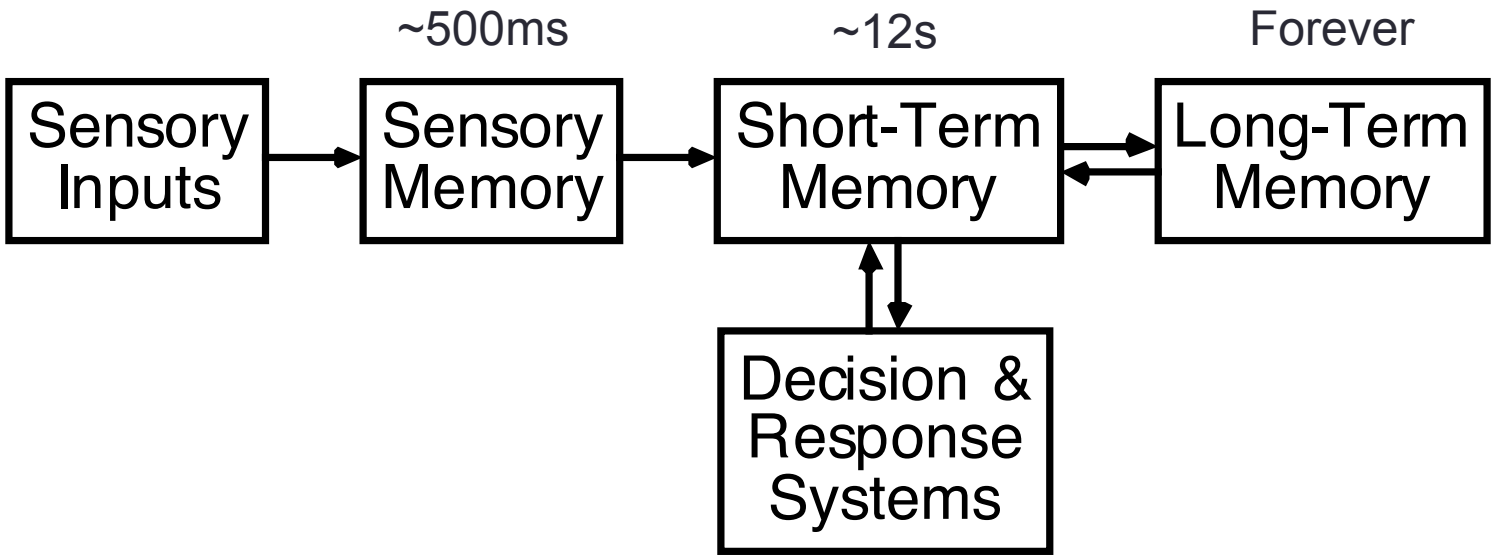
STM

WM



Think, pair, share

Design an experiment to test the capacity of STM/WM. How many items can be held in STM?

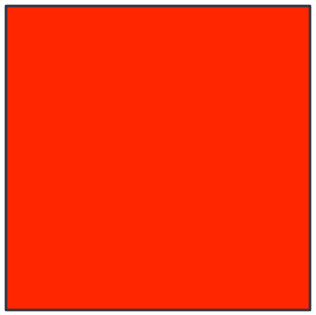


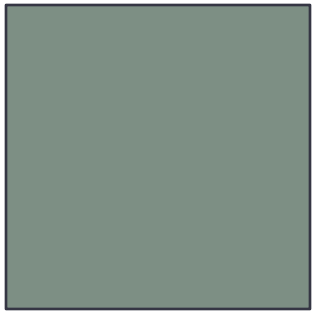
Limited Capacity of STM

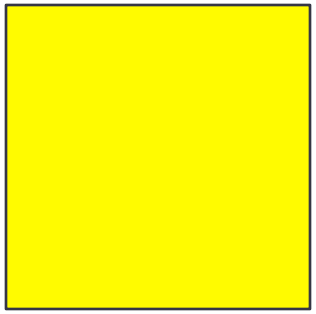
- "The Magical Number 7, Plus or Minus 2" (Miller,1956)

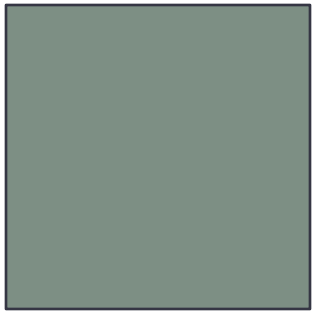
Change Detection Demo

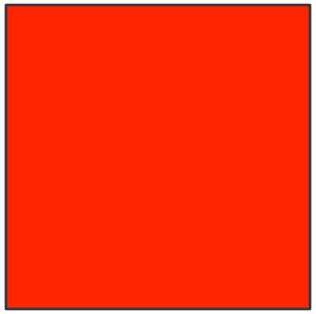
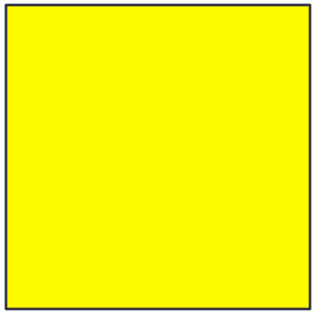
Find a changed color between two sequential displays of color squares

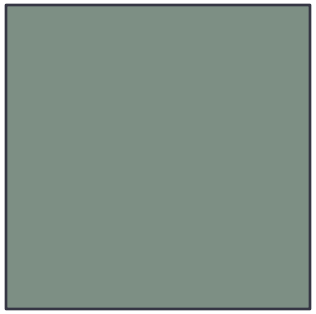


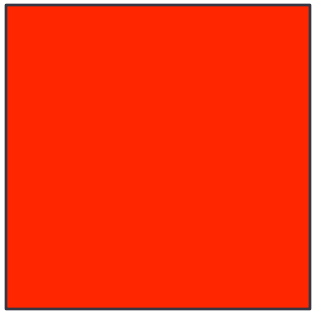
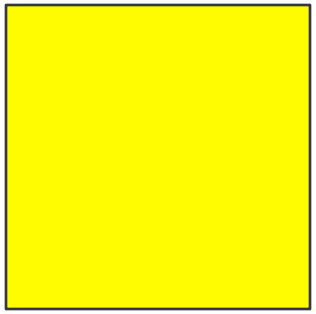


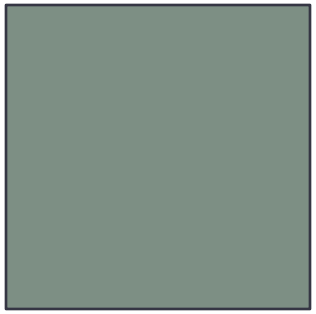


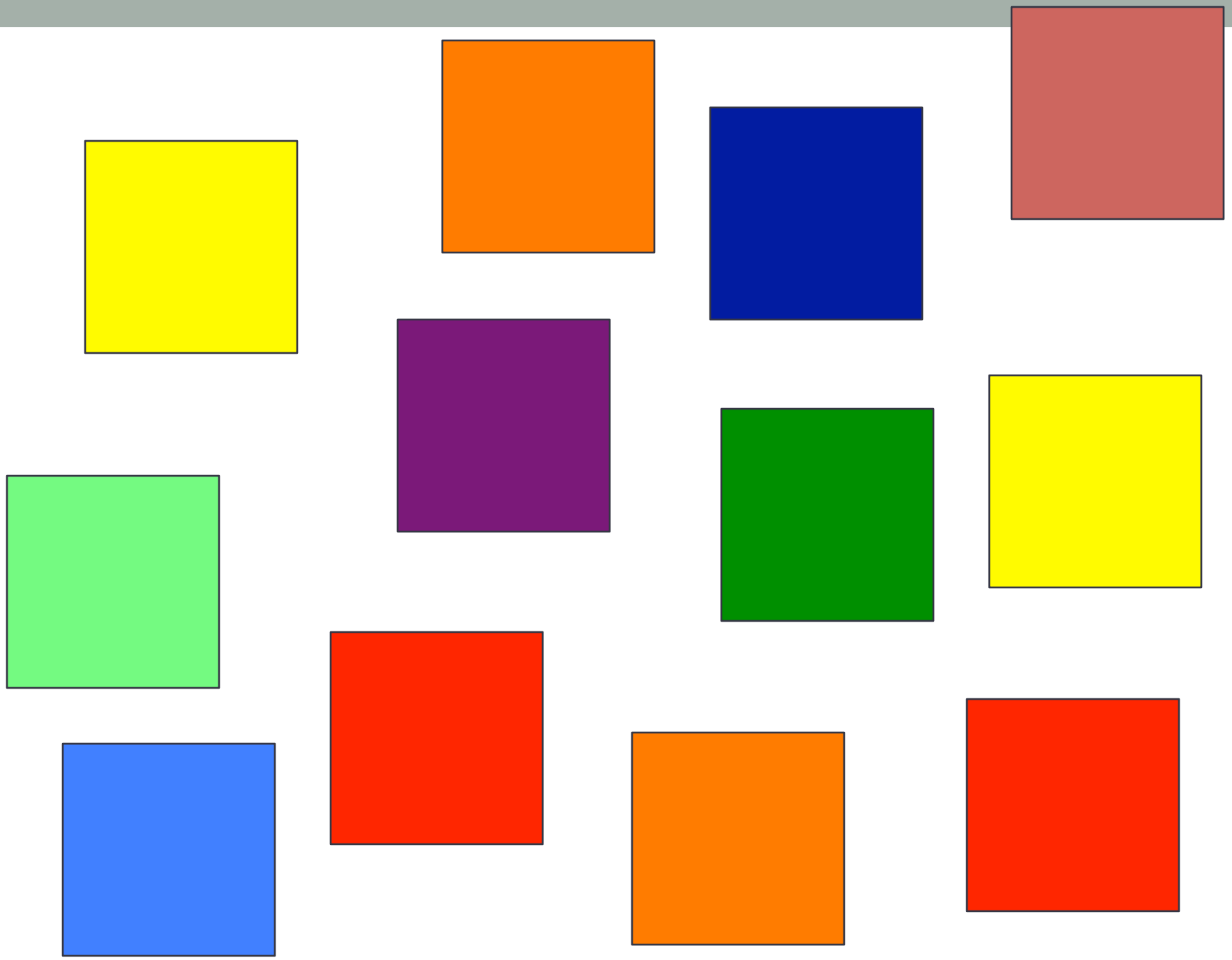


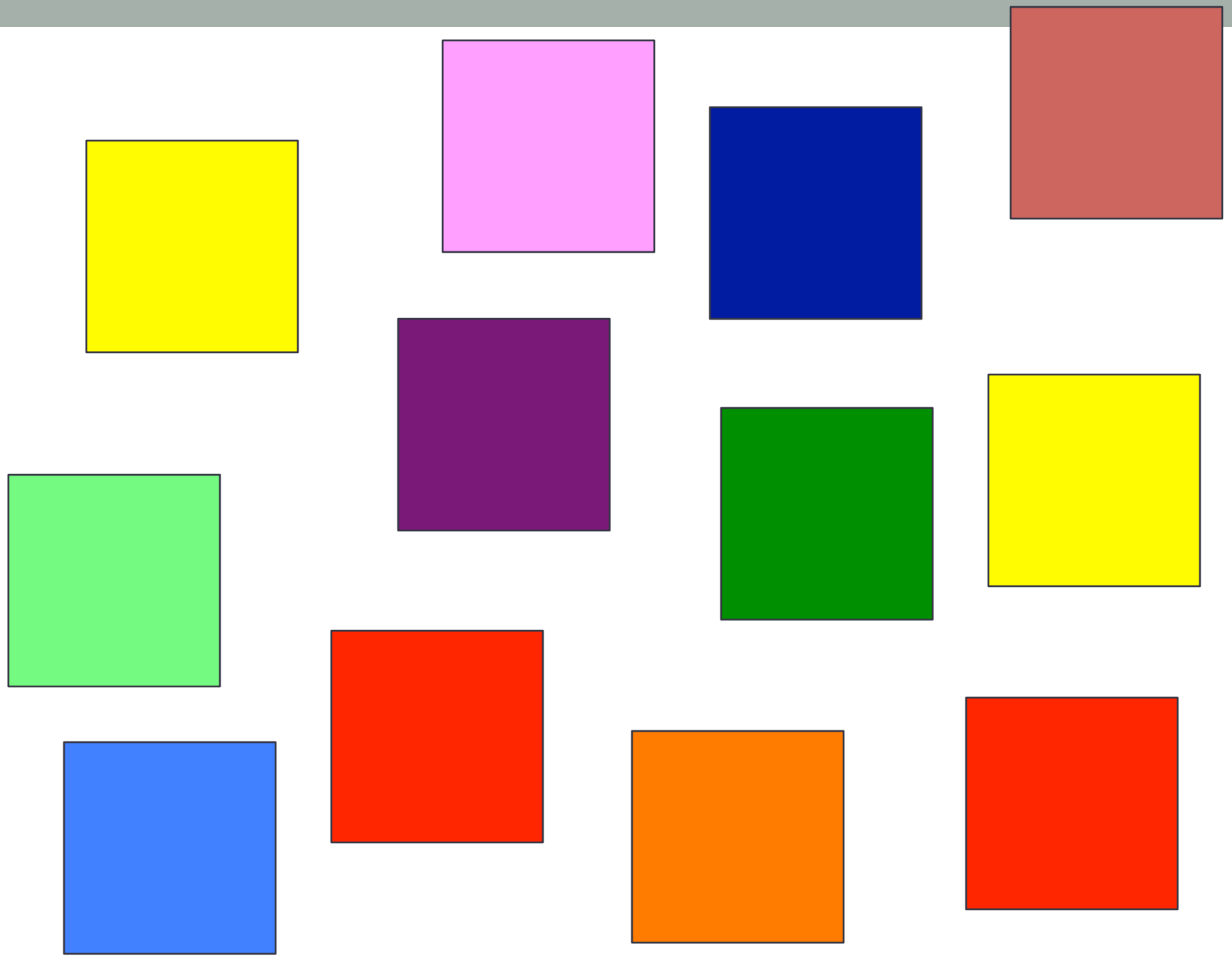





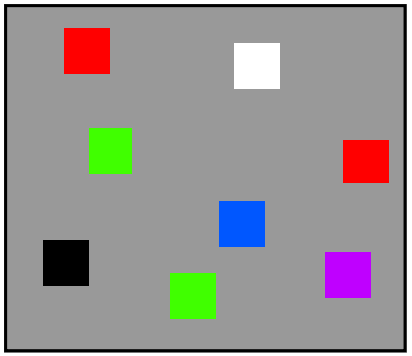




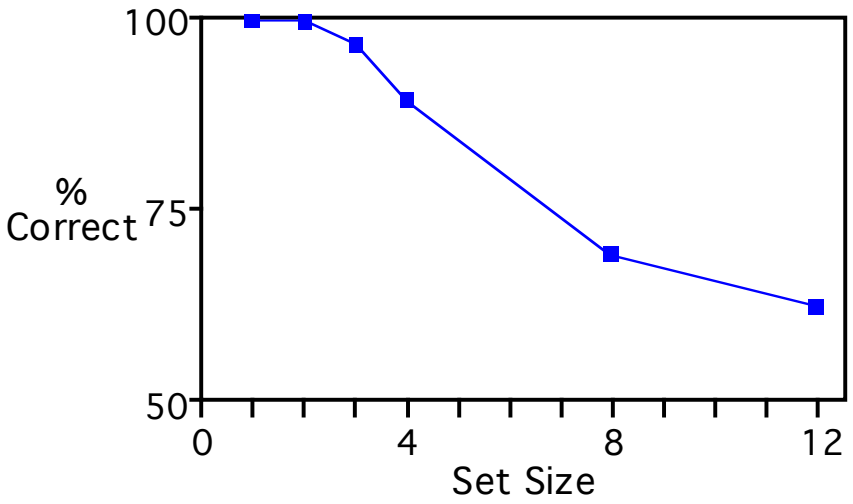


STM Capacity

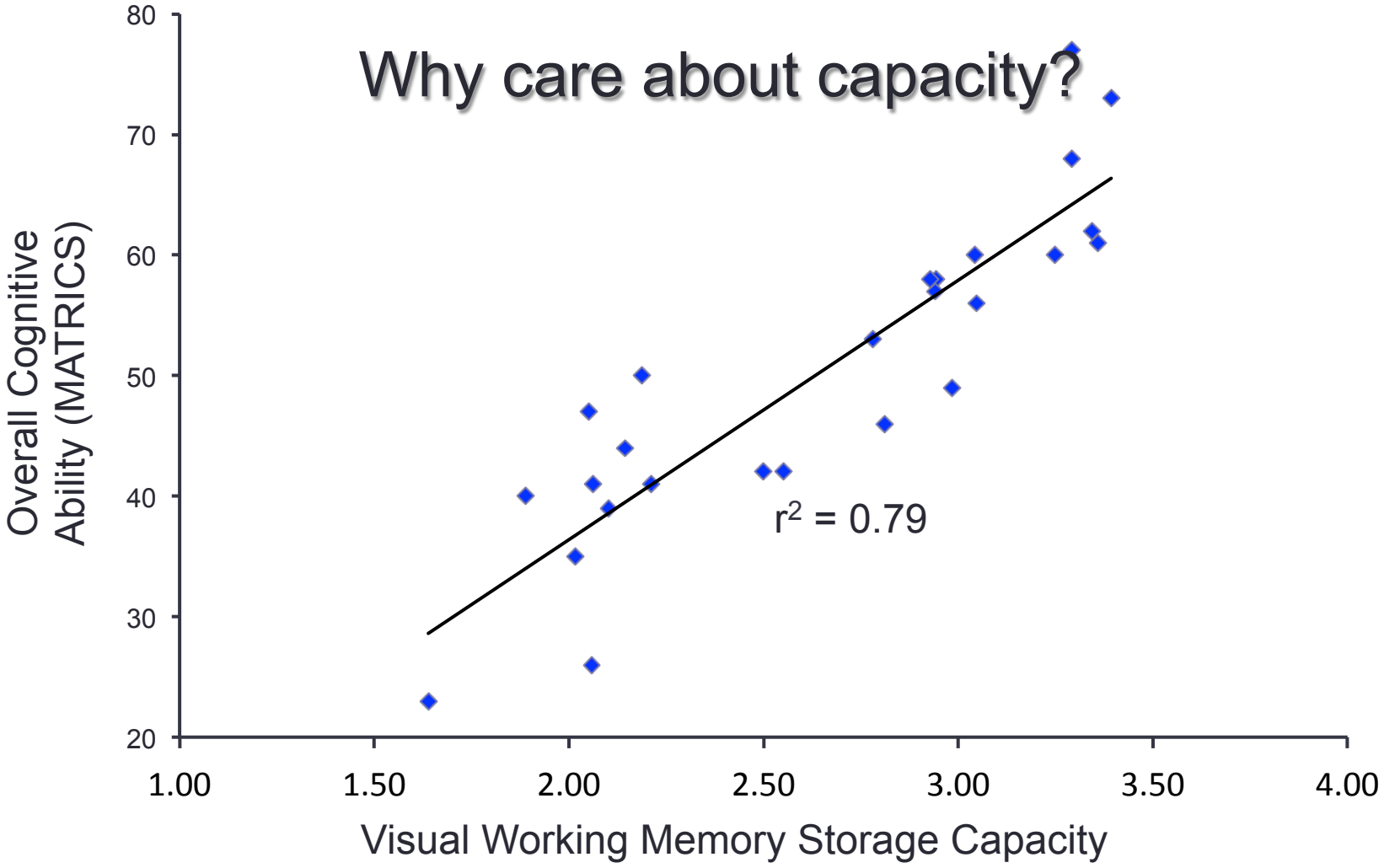
Memory Array
(100 ms)



Luck & Vogel (1997)



Capacity and Cognitive Ability



Gold et al., 2010; also see Fukuda et al, 2010

Lab 3

- For lab 3, you will be collecting data for two experiments:
- Memory span
  - Given a list of numbers, letters, or words, how many can you remember?
- Operation span - Dual task
  - Problem solving (usually a math problem)
  - Short term memory capacity for words

Primary questions:

- Is STM capacity the same for all features (digits, letters, and words here)?
- Is STM shared between problem solving and storage?

Hint for Lab 3

- Correlate *Numbers* and *Letters*
- Correlate *Numbers* and *Words*
- Correlate *Letters* and *Words*

Answers the question: is capacity different for different types of stimuli?

- Compare capacity for words and capacity from operation span
- Correlate *Numbers* and *Operation Span*
- Correlate *Letters* and *Operation Span*
- Correlate *Words* and *Operation Span*

Answers the question: Does problem solving and storage use the same system?